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Assessment of Barriers to Integrated Care Service Utilization Among Older Adults in Comprehensive Health Centers of Zanjan City: A Cross-Sectional Study

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Abstract

Background: Although integrated care improves service delivery, older adults still face significant barriers to access health services, underscoring the need to address these challenges.

Aim: This study was conducted with aims to assess the barriers to integrated care service utilization among older adults in comprehensive health centers.

Method: This descriptive cross-sectional study was conducted in 2023 among 353 older adults in Zanjan City using simple random sampling. Data were collected through a questionnaire covering five domains: informing older adults, access to facilities or information, family/personal reasons, service quality, and preference for private sector services, and analyzed using t-tests, ANOVA, and linear regression at a 95% confidence level.

Results: Several primary reasons were identified for not utilizing older adults' services, such as lack of awareness about available service types, seeking health information from other sources, personal and family-related factors, concerns about healthcare quality, and a preference for private sector services. Additionally, significant predictors of non-use of older adults' services included education, economic status, marital status, occupation, and health status.

Implications for Practice: The findings of this study underscore the complexity of factors influencing older adults' access to health services, extending beyond individual characteristics to include systemic and structural barriers. Addressing barriers to integrated care service utilization demands a multi-level strategy that combines public awareness initiatives, quality enhancement of care delivery, and targeted actions to reduce socioeconomic inequities. Such an approach is critical for achieving equitable healthcare access among older adults.

Keywords: Adults, Barriers, Health Services, Integrated Health Care Systems

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Introduction

Aging is an inevitable biological process, and global trends show a steady increase in the older population due to declining fertility and improved health services (1-3). According to the World Health Organization, the global population aged 60 and over is expected to rise from one billion in 2019 to 2.1 billion by 2050, with the most rapid growth occurring in developing countries (4). In Iran, individuals aged 60 and over are expected to make up over 32% of the population by 2025 (5). Projections from International Help Age estimates that the elderly share will reach 14.8% by 2030 and 29.3% by 2050, underscoring the pressing need for policies targeting their health, social, and economic needs (6). Successful ageing is defined as maintaining physical and cognitive function, avoiding major illness or disability, and active participation in life (7). Access to health services plays a vital role in maintaining or restoring the physical well-being of older adults (4).

Despite efforts to expand health centers in Iran, the utilization of preventive and health promotion services remains low, with most individuals seeking care only for acute conditions (8, 9). The National Study of Health Service Utilization (2015) in Iran revealed that although nearly 39% of older adults reported a need for outpatient services, only two-thirds actually sought care. Service utilization was significantly influenced by socioeconomic factors, with lower access observed among individuals with limited education, lack of insurance coverage, and financial constraints. The main barriers to service utilization included inability to afford treatment costs, reliance on self-treatment, and inadequate insurance coverage (10). Similarly, a study conducted in western Iran reported that the unmet healthcare needs of older adults reached 46.6% for outpatient services and 17% for inpatient services (11).

Health service utilization in low-income countries is influenced by various factors, including health insurance coverage, the presence of chronic diseases, age, gender, educational attainment, and urban versus rural residence (12, 13). Additionally, factors such as distance to healthcare facilities, cost of treatment, and the quality of care significantly influence access to services (14, 15). The lack of essential equipment and inadequate physical infrastructure in health centers also presents a major barrier to providing healthcare for older adults (16, 17). A study conducted in Sanandaj also revealed that a software malfunction in the service delivery system resulted in overcrowding at health centers, contributing to patient dissatisfaction. Furthermore, low health literacy and limited awareness among older adults were identified as the key factors contributing to the underutilization of healthcare services (18). In Tehran, several factors contribute to this challenge, include limited education among older adults, lower income levels, chronic diseases, and lack of fluency in the predominant language (1, 3). Additionally, in India, high workloads and a lack of trained staff contribute to a passive approach towards promoting health and independence among older adults (19). In the Germany, ensuring access to health and treatment services, which serves as a meeting point between the supply and demand sides of healthcare and welfare, is a critical issue in health policies (20).

The integrated care program for older adults is currently being implemented in health centers (3, 21). Integrated care often involves collaboration among healthcare professionals, social workers, and community organizations to address both medical and non-medical factors affecting a patient's well-being (3, 21). In Iran, integrated care services ensure coordinated healthcare across different levels. Primary Healthcare (PHC), delivered through health centers including vaccinations, early detection of non-communicable diseases (NCD) screening, mental health services, and nutrition counseling, aims to provide accessible, comprehensive, and continuous care to promote health and prevent disease across the lifespan (1). According to the reports from Zanjan health care registration systems (SIB), older adults integrated care service utilization trend has declined in recent years. There is a lack of research exploring the underlying reasons for this issue in Zanjan city. Identifying the reasons for this limited engagement is essential to inform targeted interventions and improve access to integrated care services at health centers. This study was conducted with aim to assess the barriers to integrated care service utilization among older adults in comprehensive health centers in Zanjan City in 2023.

Methods

This cross-sectional study was conducted in all comprehensive health centers in Zanjan City. The research population included all eligible older adult individuals covered by these centers. The inclusion criteria for the study were: aged 60 years or older, permanent residents of Zanjan city for at least one year, possession of a valid contact phone number, having an active health record at one of

the comprehensive health centers (The SIB system) in Zanjan, not used integrated care services for older adults in the past 12 months, ability to communicate effectively and provide reliable responses, and willingness to participate in the study. Older adults were excluded from the study if they had cognitive impairments or severe mental disorders that hindered their ability to provide reliable responses, unable to communicate effectively due to hearing or speech impairments, critically ill at the time of data collection, or expressed unwillingness to continue participation at any stage of the study. The sample size was calculated based on Tajur et al.'s study (22), which reported a non-utilization rate of services by older adults (p=0.34), and considering a study accuracy of 0.05 with a type 1 error rate of 0.05, and using Cochran's formula to be 345 individuals. Given a 3% drop in the sample, the sample size increased to 353 individuals. To clarify, the sample for factor analysis was drawn from separate subsets of the total participants. 200 older adults were selected for exploratory factor analysis (EFA), and an independent subset of 270 participants was used for confirmatory factor analysis (CFA). To reach the calculated sample size based on Cochran's formula, the total number of participants was increased to 353. Sampling was conducted across all 21 comprehensive urban health centers in Zanjan City. First, the sample size for each center was determined based on the proportion of older adults covered by that center. Subsequently, the names of eligible older adults were extracted from the Integrated Health system (SIB), Iran's national Electronic Health Record (EHR) platform. The SIB system, launched in 2015 as part of the Health Transformation Plan, is designed to integrate health-related information and facilitate the delivery of healthcare services at the primary care level (23). Using a simple random sampling method, the required number of participants was selected from the list of eligible individuals for each health center.

Questionnaires were then administered via telephone calls and interviews with the older adults themselves or their family members responsible for their affairs. If there was no response after two phone calls or if the individual declined to participate in the study, another person was selected as a replacement. The data were collected using demographic profile questions (age, gender, education, marital status, occupation, economic status), health status from the older adults' perspective using a Likert scale (poor-moderate-good), and economic status assessed qualitatively in a Likert scale (poor-moderate-good).

The reasons for not using integrated older adult care services were assessed using a researcher-developed questionnaire. Questionnaire items were developed through literature review and expert consultation. Following initial screening and revision by the research team, overlapping questions were merged or removed, reducing the total items from 46 to 39. For qualitative face validity, 10 individuals from the research units reviewed the questionnaire to assess difficulty, appropriateness, and clarity. For quantitative face validity, 15 older adults rated each item on a 5-point Likert scale of importance. All items achieved an impact score above 1.5, confirming their perceived relevance (24). In the qualitative assessment, the tool was reviewed by 8 experts (health promotion, geriatric health, healthcare management, nursing) for content coverage, language, and item placement. Quantitatively, the Content Validity Ratio (CVR) was 0.89, exceeding Lauche's recommended threshold, confirming item necessity. The Content Validity Index (CVI) for all items was above 0.7, indicating acceptable content validity (25).

Exploratory factor analysis (EFA) was performed using SPSS v.16 to assess construct validity. Based on the recommended 5–10 participants per item, 200 older adults were included. EFA was conducted using Principal Component Analysis with Varimax rotation, considering eigenvalues greater than one and factor loadings equal to or greater than 0.3. The KMO value was 0.89, and Bartlett's test was significant ($\chi^2 = 63433.75$, p=0.001), confirming data suitability. Five factors with 34 items explained 60.07% of the total variance. Based on content, the factors were labelled as: (1) reasons related to informing older adults, (2) access to facilities or information from other sources, (3) family and personal reasons, (4) quality of services, and (5) preference for private sector services. Items were rated on a 5-point Likert scale.

CFA was performed on a separate sample of 270 participants using LISREL software. The model fit was acceptable ($\chi^2/df = 1.87$, CFI = 0.96, GFI = 0.97, AGFI = 0.92, RMSEA = 0.08). All factor loadings were significant (T more than 2) (Figure 1). Cronbach's alpha for the total questionnaire was 0.84 (n = 50), indicating good internal consistency. Stability was confirmed via test-retest with 15 participants over two weeks, yielding an ICC =0.80

The data were analyzed using SPSS software (version 16) using descriptive Statistics Indicators,

independent t-tests, ANOVA test, and a linear regression model at the 95% confidence level.

Ethical Consideration

All the required permissions have been obtained from the Zanjan University of Medical Science (ethical code: IR.ZUMS.REC.1402.061). Written informed consent was obtained from all participants who were willing to participate in the study.

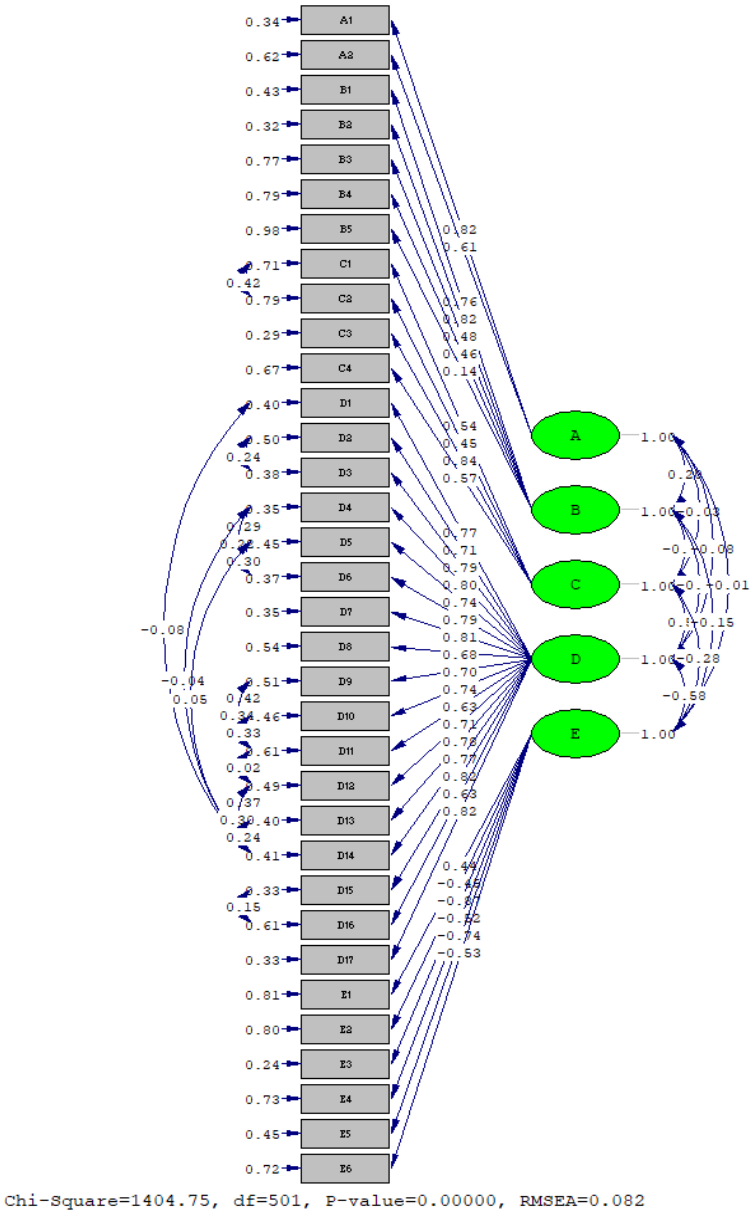

Figure 1: Confirmatory Factor Analysis Model of the Questionnaire Structure

Results

More than half of the participants were women. Over 61% of the participants were aged between 60 and 65 years, while more than 42% were illiterate. Additionally, 83% were married, and 44% were unemployed. Moreover, 53% described their family's economic status as average, and 40% reported their health status as good. All participants demonstrated awareness of time and place while answering questions and exhibited good verbal communication skills.

The frequency of reasons for not visiting comprehensive health centers to benefit from older adults' services regarding information showed that more than 40% of the older adults were unaware of the types of services provided to them. Additionally, nearly 49% of the older adults

were unaware of the exact address of the health center near their residence.

In terms of access to facilities, 58% of the older adults stated that they had not visited comprehensive health centers because they accessed health information through cyberspace or media. Additionally, 62% believed that they could easily obtain the information they needed from reliable sources due to their high literacy, and they did not feel the need to visit health centers. Nearly, 44% reported access to basic health equipment such as scales, blood pressure monitors, glucometers, etc., at home. Additionally, 58% did not visit the centers due to a preference for self-medication or traditional medicine. The results regarding family reasons showed that 48% stated they could not go to the health center due to various physical problems, and 53% of cases needed to be accompanied by a family member to visit the health center; 55% reported that they do not feel like going to the health center, while 54% indicated that due to multiple family problems, the health of older adults is considered a lower priority compared to these issues (Table 1).

Table 1: The reasons related to information, access to facilities, and family and personal factors

Reasons	Questions	Mean±SD	Frequency (%)				
			Very high	High	Average	Low	Very low
A=Reasons related to informing older adults services	Not informed about the types of older adults' services in comprehensive health centers.	2.52±2.38	31(8.8)	59(16.7)	61(17.3)	59(16.7)	143(40.5)
	Not informed about the addresses of nearby comprehensive health centers.		29(7.4)	49(13.9)	51(14.4)	55(15.6)	172(48.7)
B=Access to facilities or health information	Access to health information through media and cyberspace.	16.05±3.26	207(58.6)	96(27.2)	25(7.1)	17(4.8)	8(2.3)
	Having a high level of education and easy access to necessary information.		220(62.3)	84(23.8)	30(8.5)	15(4.2)	4(1.1)
	Access to individuals with education related to health.		154(43.6)	123(34.8)	38(10.8)	32(9.1)	6(1.7)
	Having basic health equipment such as a scale, blood pressure monitor, glucometer, etc., at home.		134(38)	89(25.2)	72(20.4)	50(14.2)	8(2.3)
	Self-treatment or traditional medicine.		204(57.8)	96(27.2)	34(9.6)	14(4)	5(1.4)
C=Family and personal reasons	Having multiple physical problems and difficulty in visiting health centers.	12.98±3.03	169(47.9)	91(25.8)	39(11)	25(7.1)	29(8.2)
	Having need for assistance from a family member to visit a health center.		188(53.3)	115(32.6)	25(7.1)	19(5.4)	6(1.7)
	Lack of patience and sufficient motivation to visit a health center.		205(58.1)	104(29.5)	21(5.9)	13(3.7)	10(2.8)
	Lower priority of older adult's health issues compared to other life matters in the family.		193(54.7)	108(30.6)	34(9.6)	13(3.7)	5(1.4)

The quality of human resources in the public health center was generally favourable. However, issues were noted regarding accessibility and convenience, the presence of many stairs made it inaccessible for wheelchairs, the waiting areas were often crowded, and the admission process was not timely. In addition, 28% of the older adults preferred using private sector services because of the specialized services offered there. Additionally, 41% stated that receiving services from the private sector is time-efficient, 43% believed that the quality of services is better, 33% reported that services are provided correctly, and over 56% felt that the behavior of private sector personnel aligns with Islamic principles (Table 2).

The comparison of the average scores based on demographic characteristics revealed that men, individuals aged 65 to 69, those with secondary education, widowed individuals, employed individuals, and those with good economic status had significantly higher scores (Table 3).

Table 2: Frequency of reasons related to the quality of services provided in health centers and preference for receiving services from the private s ector

Reasons	Questions	Mean±SD	Frequency (%)				
			Never	Sometimes	Occasionally	Often	Always
D=Reasons related to the quality of services provided at the health center	Suitable hygiene conditions of the environment in health centers.	60.52±9.26	0	1(0.3)	5(1.4)	101(28.6)	246(69.7)
	Difficulty accessing space of health centers (number of stairs or lack of elevator).		5(1.4)	14(4)	27(7.6)	86(24.4)	221(62.6)
	Lack of wheelchair-accessible pathways for disabled individuals.		3(0.8)	11(3.1)	21(5.9)	88(24.9)	230(65.2)
	High-quality and modern medical equipment.		0	2(0.6)	15(4.2)	103(29.2)	233(66)
	Presence of guide signs in centers.		0	4(1.1)	15(4.2)	101(28.6)	233(66)
	Presence of basic facilities such as water coolers and sanitary services.		0	3(0.8)	12(3.4)	102(28.9)	236(66.9)
	Healthcare personnel keep secrets.		0	2(0.6)	2(0.6)	94(26.6)	255(72.2)
	Healthcare personnel have sufficient expertise.		0	7(2)	9(2.5)	93(26.3)	244(69.1)
	Healthcare personnel interested in providing services.		2(0.6)	7(2)	5(1.4)	89(25.2)	250(70.8)
	Healthcare personnel allocate sufficient time when providing care.		2(0.6)	7(2)	6(1.7)	93(26.3)	245(69.4)
	Healthcare personnel have appropriate behavior towards patients.		5(1.4)	7(2)	5(1.4)	95(26.9)	241(68.3)
	Overcrowding in health centers.		1(0.3)	8(2.3)	24(6.8)	98(27.8)	222(62.9)
	Process of receiving care being time-consuming and older adults experiencing significant delays.		1(0.3)	4(1.1)	26(7.4)	102(28.9)	220(62.3)
	Sufficiency of staff numbers relative to the visiting population.		0	4(1.1)	17(4.8)	111(31.4)	221(62.6)

	Inadequacy of reception and appointment scheduling times.		0	2(0.6)	6(1.7)	119(33.7)	226(64)
	The suitability of working hours at centers.		1(0.3)	5(1.4)	7(2)	116(32.9)	224(63.5)
	Maintaining order in patient reception (handling walk-ins).		0	1(0.3)	5(1.4)	111(31.4)	236(66.9)
E=Preference for receiving services from the private sector	Private sector offers more specialized services compared to public sector.	17.93±2.73	33(9.3)	61(17.3)	56(15.9)	103(29.2)	100(28.3)
	Receiving services from private sector is not time-consuming.		12(3.4)	25(7.1)	45(12.7)	126(35.7)	145(41.1)
	Privacy and confidentiality are more respected in private sector.		0	2(0.6)	66(18.7)	93(26.3)	192(54.4)
	Better quality services are provided in private sector.		3(0.8)	9(2.5)	52(14.7)	136(38.5)	153(43.3)
	In private sector, personnel provide timely and proper service to people.		38(10.8)	59(16.7)	34(9.6)	105(29.7)	117(33.1)
	In private sector, healthcare personnel observe Islamic norms.		4(1.1)	27(7.6)	24(6.8)	98(27.8)	200(56.7)

Table 3: Comparison of total score of non-use of older adults' services regarding demographic characteristics

Total Score		Frequency (%)	Mean±SD	P-value
Non-use of older adults services	**Gender**			
	Female	178 (50.4)	108.57±13.85	0.038*
	Male	175 (49.6)	111.48± 12.27	T=-2.08
	Age (Year)			
	60-64	218(61.8)	109.78±12.86	0.044**
	65-69	27(7.6)	116.70±11.13	F=2.72
	70-74	79(22.4)	108.56±13.42	
	≥75	29(8.2)	109.44±15.07	
	Education			
	Illitarate	151(42.8)	111.33±13.38	0.001**
	Elementary	21(5.9)	94.76±3.20	F=8.83
	High school	50(14.2)	112.07±13.65	
	Diploma	46(13)	108.50±13.55	
	University	85(24.1)	110.32±94.41	
	Marital status			
	Single	16(4.5)	99.12±10.94	0.003**
	Married	294(83.3)	110.47±12.73	F=5.92
	Wife’s death	43(12.2)	110.93±15.17	
	Job status			
	Unemployed	157(44.5)	108.94±13.80	0.001**
	Government Pensioner	137(38.8)	108.13±12.54	F=7.63
	Freelance Job	50(14.2)	116.94±10.53	
	Public Employee	9(2.5)	118.77±8.80	
	Family income			
	Good	58(16.4)	116.06±9.60	0.001**
	Average	188(53.3)	108.82±13.26	F=7.62
	Low	107(30.3)	108.82±13.81	

*Independent t-test, **ANOVA

Table 4 indicated that education, marital status, occupation, economic status of the family, and the health status of the older adults were predictive factors for not utilizing older adults' services. Specifically, the likelihood of not using services was 0.17 unit lower for people with less education. Married or widowed individuals were 0.14 unit more likely to use services compared to single individuals. Working people were 0.14 unit more likely to use services than unemployed or retired individuals. Those with poor economic status were 0.13 unit less likely to use services, while those in good health were 0.17 unit more likely to not use the services.

Table 4: Linear Regression Model for predictors of non-utilization of older adults services

Model		B	Standardized Coefficients Beta	t	P value*
Model inter	Age	-0.282	-0.02	-0.416	0.678
	Gender	1.182	0.04	0.667	0.505
	Education	-1.540	-0.17	-2.859	0.005
	Marital Status	4.695	0.14	2.763	0.006
	Job	2.344	0.14	2.065	0.040
	Family income	-2.673	-0.13	-2.410	0.016
	Older adults Health Status	3.031	0.17	3.135	0.002

*R = 0.329, Adjusted R Square = 0.090, R Square=0.108, Durbin-Watson = 1.46

Discussion

This study found that key reasons for older adults not using integrated care services at health centers in Zanjan include lack of awareness about available services, limited access to health facilities and information, personal and family factors, concerns about service quality, and preference for private providers. Consistently, a 2023 qualitative study by Ayubi et al. also identified insufficient information as a major barrier to older adults' engagement with health services (14). These findings underscore the need for targeted information programs to promote greater service utilization among the growing older adult population. A study in Sanandaj also showed that technical issues in service delivery systems led to overcrowding and dissatisfaction, while low health literacy and limited awareness further contributed to poor service utilization among older adults (18).

The demand for and benefit from health services are influenced by factors such as geographic location, socioeconomic status, and individual needs (26). The findings of the present study indicated that limited access to healthcare facilities and health information is a major reason for older adults' underutilization of healthcare services. More than half of the older adults preferred to obtain health information through cyberspace or media, and over two-thirds believed that their literacy level enabled them to access reliable information independently. Additionally, over one-third of participants had access to basic health equipment at home, such as scales and blood pressure monitors, and some resorted to self-medication or traditional medicine. Significant predictors of non-use of services included marital status (married or widowed), employment, low economic status, and good health. These results partially align with a 2014 Korean study, which identified older age, male gender, poor health, chronic disease, and low income as the predictors of traditional medicine use (27). However, the study by Tajour et al. presents somewhat contrasting findings, reporting that unmarried individuals, women, older adults, rural residents, and those with lower education levels demonstrated higher demand for outpatient services. Furthermore, lack of basic and supplementary insurance as well as absence of personal transportation were significant barriers to outpatient visits. High service costs, self-treatment, and lack of insurance coverage were also primary reasons for avoiding healthcare. The study further indicated that individuals with higher socioeconomic status derived greater benefits from healthcare services, highlighting evident disparities in access (22). These variations suggest that healthcare utilization among older adults depends on cultural and contextual factors, emphasizing the need for localized research.

In the present study, nearly half of the participants reported being unable to visit health centers independently due to physical limitations or the need for family accompaniment. Additionally, 85% expressed reluctance to visit, and 54% believed that family concerns often deprioritize older adults' health. Morowati-Sharifabad et al. (2017) similarly found that older adults and their families often did

not perceive illnesses as serious and engaged in self-medication. Factors such as low education, marital status, and lack of supplementary insurance were significant predictors of healthcare-seeking behavior (28). Soleimanvandi et al. also identified education, social network support, and employment status as the key determinants of utilizing older adults' services (29). These consistent findings emphasize the need for policies addressing personal and family barriers and fostering supportive environments to improve service utilization among older adults, especially those with health or mobility challenges.

The present study also found that most older adults avoided government health centers due to physical barriers (stairs, lack of wheelchair access), crowded waiting lines, and poor scheduling. Borhaninejad et al. (2014) reported that over 27% of older adults in Kerman did not visit doctors due to self-treatment, with overcrowding and perceived mild illness as the main reasons. Outpatient service use declined with age and was higher among women, married, illiterate, and those with poorer self-rated health; however, uninsured and some older adults less used services (30). These findings align with our results. Nearly one-third of participants preferred private sector services, mainly seeking specialized care, highlighting a shortage of geriatric specialists in community care.

In this study, over one-third of older adults believed that private sector services are more time-efficient and of higher quality compared to public health services. Similarly, Rahaman et al. (2024) reported that 57.3% of older adults used private services, while only 30.2% utilized public services, with concerns over the quality of care in public health centers frequently cited. Education, economic status, residence, health status, and insurance coverage were significant predictors of outpatient service use in both sectors (31). Borhaninejad et al. also found that specialist doctors' private offices were the most common location for outpatient care among older adults (46.6%), with musculoskeletal disorders being the primary reason (30). However, these findings contrast with Gadhamgahi et al. (2015), who reported that only 14.4% of outpatient services involved specialist visits (26). The absence of adequate equipment or appropriate physical infrastructure in health centers represents a significant barrier to delivering healthcare services to older adults. A conducive physical environment can enhance service quality, fostering a positive perspective among both service recipients and providers (12, 13). These results are not consistent with the study conducted by Gadhamgahi et al. The disparity could be attributed to differences in demographic characteristics among participants, such as family income levels and health statuses. To improve the utilization and benefit of integrated older adult services, it is crucial to plan initiatives that enhance service quality and align with the specific needs and preferences of older adults. This approach can effectively cater to their healthcare requirements and improve overall service satisfaction.

The study's strengths include an adequate sample size, enhancing statistical power and representativeness for Zanjan's older adult population. Random sampling minimized selection bias, and the use of a standardized, psychometrically validated questionnaire improved data reliability. However, reliance on self-reported data may introduce response bias. The geographic focus on Zanjan limits generalizability to other regions. The cross-sectional design also restricts analysis of long-term trends. Finally, the quantitative approach may not fully capture the complex reasons behind service preferences, highlighting the need for complementary qualitative research.

Implications for practice

This study highlights the complex factors affecting older adults' access to health services, extending beyond individual characteristics to systemic and structural barriers. Addressing these challenges requires a multi-level approach, including raising public awareness, improving service quality, and reducing socioeconomic disparities. Such measures are essential to ensure equitable access and enhance the effectiveness of integrated healthcare for older adults.

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Conflicts of interest
No potential conflict of interest relevant to this article was reported.

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Authors' Contributions
R.H. and A.M. Sh. B and M.T. contributed to the data collection process. Analysis, interpretation, and reporting were supervised by A.M. All authors contributed to the drafting and revising of the article and agreed with the final version of the manuscript to be submitted to the journal.

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